

REMARKS

Reconsideration and withdrawal of all grounds of rejection are respectfully requested in view of the above amendments and the following remarks. Claims 1-6 and 8-9 were rejected. By entry of this amendment, claims 1 and 2 have been amended. New claims 10 and 11 have been added. Consequently, claims 1-6 and 8-11 are pending in this application. No new matter has been added.

Claim Objections

Claims 1 and 2 have been amended to overcome Examiner's objections. Applicant respectfully submits that claims 1 and 2 are in condition for allowance. No new matter has been added.

Claim Rejections under 35 USC § 103

Examiner rejected claims 1 and 2 under 35 USC §103(a) as being unpatentable over Roycroft et al. (US 5,531,179) in view of Krude (US 4,632,203). Applicant respectfully submits that claims 1 and 2 are patentable over the cited references, as the references do not disclose, teach, or suggest all of the features of the claimed invention and further, one of ordinary skill in the art would not combine these references to arrive at the claimed invention. Therefore, claims 1 and 2 are believed to be allowable and reconsideration is requested.

The Examiner cites Krude for indicating that it is known in the art "for one of said constant velocity joints to be of a plunging type, and other of said constant velocity joints to be of a fixed type." However, Krude does not disclose, teach, or suggest how one skilled in the art would configure a retractable wheel transmission system with the inner constant velocity joint being a fixed or non-plunging type and the outer constant velocity joint being a plunging type, as recited in claims 1 and 2. In other words, Krude would not enable one skilled in the art to produce a retractable wheel transmission system for an amphibious vehicle with such a combination of constant velocity joints.

Instead, Krude discusses the use of a plunging joint at the inner end of the drive shaft. If a plunging joint is used at the inner end of the drive shaft on a retractable suspension, there is significant probability that, as the suspension retracts and the drive shaft is obliged to lengthen, the drive shaft will be drawn out of the plunging joint and the plunging joint will lock up. However, the locus of retraction at the outer end of the drive shaft is different from the locus of retraction at the inner end. As such, if the plunging joint is transferred to the outer end of the drive shaft, the different locus of retraction at the outer end of the drive shaft will not cause such a severe conflict. Therefore, it would not be obvious to one of ordinary skill in the art to just switch the constant velocity joints in Krude to produce a retractable wheel transmission system for an amphibious vehicle. To put it another way, one of ordinary skill in the art would have to complete a complex analysis before arriving at this point of understanding.

Further, according to the MPEP, the Examiner must provide a motivation or reason for one skilled in the art, without the benefit of Applicant's specification, to make a retractable wheel transmission system with the inner constant velocity joint being a fixed or non-plunging type and the outer constant velocity joint being a plunging type. MPEP 2144.04(VI)(C); *See Ex Parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984) ("The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device."). As discussed below, the Examiner has not stated such a sufficient motivation or reason.

Examiner states that one of ordinary skill in the art would have been motivated to combine Roycroft and Krude "for the purpose of providing an amphibious vehicle with an independent wheel suspension having a greater articulation angle range of a wheel with respect to a drive shaft." As explained in Applicant's specification, "[a] plunge joint can only operate within a limited range of driveshaft angles, because the drive shaft will contact the outer sleeve when these angles are exceeded," while the "fixed joint can operate through a larger range of angles." (US 2008/0045092, paragraph [0018]). As such, one skilled in the art would not be

motivated to use a plunging joint to provide a retractable independent wheel suspension with a greater articulation angle range of a wheel with respect to a drive shaft.¹ Instead, other known combinations exist that would provide a greater articulation range of a wheel with respect to the driveshaft, *e.g.*, fixed joints at either end of the drive shaft. The use of a plunging joint in this situation would be contrary to accepted wisdom. MPEP 2145(X)(D)(3); *See In re Hedges*, 783 F.2d 1038 (Fed. Cir. 1986) (The totality of the prior art must be considered, and proceeding contrary to accepted wisdom in the art is evidence of nonobviousness.). Therefore, it would not be obvious to one of ordinary skill in the art to use a plunging joint on the outer end of the drive shaft to provide a retractable independent wheel suspension with a greater articulation angle range of a wheel with respect to a drive shaft.

Still further, a plunging joint is bulkier than a fixed joint. As such, the fixed joint would be a more apparent choice to one skilled in the art for placement in the wheel hub, where the constant velocity joint competes for space with many other components. If a plunging joint is fitted in the wheel hub, the plunging joint would add unwanted unsprung weight to the wheel hub. As such, it would not be obvious for one of ordinary skill in the art to utilize a plunging joint at the outer end of the drive shaft in the wheel hub. MPEP 2145(X)(D)(3); *See United States v. Adams*, 383 U.S. 39 (1966) ("Known disadvantages in old devices which would naturally discourage search for new inventions may be taken into account in determining obviousness.").

In summary, the cited references do not disclose, teach, or suggest all of the features of the claimed invention and further, one of ordinary skill in the art would not combine these references to arrive at the claimed invention. Therefore, claims 1 and 2 are believed to be allowable.

¹ Applicant's specification goes on to state: "[C]learly, a standard plunging inner CV joint for a road wheel suspension will not allow the range of movement required for a retractable suspension, as it is only capable of articulation through total angle α_R (fig. 1); so it cannot be used in this position on an amphibious vehicle with retractable suspension. Nor can a plunging joint be used at the outer end of the driveshaft on a steered wheel, because its range of operating angles would not allow sufficient steering lock as well as suspension movement. So there are considerable difficulties in using plunging CV joints at either end of the driveshafts for a front engined,

Examiner rejected claims 3-6, 8 and 9 under 35 USC §103(a) as being unpatentable over Roycroft et al. (US 5,531,179) in view of Krude (US 4,632,203), and further in view of Gibbs (US 6,957,991). As stated above, claim 1 is believed to be allowable. Therefore, claims 3-6, 8 and 9 are believed to be allowable at least based on their direct or indirect dependence on allowable independent claim 1.

New Claims 10 and 11

Support for new claim 10 and 11 can be found in the Abstract, paragraph [0023], paragraph [0027], and Figures 6-8 of the application, among other places. No new matter has been added. Claims 10 and 11 are believed to be allowable.

In view of the above amendments and remarks, it is respectfully submitted that all pending claims of this application are in condition for allowance. Accordingly, a Notice of Allowance for all pending claims of this application is respectfully solicited. Furthermore, if the Examiner believes that additional discussions or information might advance the prosecution of this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,

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front wheel drive amphibious vehicle with retractable suspension." (US 2008/0045092, paragraph [0020]).